Response to restriction

Election of the Group I invention with traverse is acknowledged. The restriction requirement is traversed at least for the following reasons.

The restriction requirement asserts an existence of the following groups:

Group I, claims 1-18, classified in class 428, subclass 64.4.

Group II, claims 19-34, classified in class 264, subclass 478.

The M.P.E.P. provides that, "[i]f the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to distinct or independent inventions." M.P.E.P. § 803 (emphasis added).

The restriction requirement contends that the search required for the Group I invention is not required for the Group II invention and that restriction is proper as a result. However,

according to the M.P.E.P., "not only must the art be searched within which the invention claimed is classifiable, but also all analogous arts regardless of where classified." M.P.E.P. § 904.01(c) (emphasis added).

The M.P.E.P. § 904.01(c) instructs that a search of relevant prior art in both class 428, subclass 64.4 and class 264, subclass 478 should be conducted as a matter of due course. Thus, there is no serious burden to the Examiner and examination of both groups is required. Withdrawal of the restriction requirement is respectfully requested.

Rejoinder of the Group I invention and the Group II invention is further requested. See M.P.E.P. § 821.04.

Rejection Under 35 U.S.C. 112

Claims 1-18 were rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection is traversed at least for the following reasons.

"The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available" (emphasis added). M.P.E.P. 2173.02.

Regarding claims 1, 3-6, 8-12 and 14-16, the Office Action contends that the term "flattenable" is vague and indefinite.

In response to this contention, a patentee can be his own lexicographer provided the patentee's definition is clearly set forth in the specification. *Beachcombers v. Wildewood Creative Prods., Inc.*, 31 USPQ2d 1653, 1656 (Fed. Cir. 1994). The claim language "is not construed in a lexicographic vacuum, but in the context of the specification and drawings." *Toro Co. v. White Consolidated Industries Inc.*, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999). In this regard, the claim language has been clearly set forth in the specification.

Specifically, page 15, lines 19-21 and throughout teaches that a light transmission flattenable film is capable of being

polished, and that the surface of this film is then polished and flattened. The meaning of the term "flattenable" has been clearly set forth within the specification as originally filed. Accordingly, this language is clear and unambiguous.

Withdrawal of this rejection is respectfully requested.

Regarding, the Office Action contends that claim 9 lacks clarity. In response, while not conceding the propriety of this rejection, and in order to further the prosecution of the application, claim 9 has been amended, rendering the rejection moot as to this claim.

Withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. 103

Claims 1-4 and 6-17 were rejected under 35 U.S.C. 103 as allegedly being obvious over U.S. Patent 5,972,459 issued to Kawakubo et al. (Kawakubo) in view of U.S. Patent No. 5,635,267 issued to Yamada et al. (Yamada).

Claims 5 and 8 were rejected under 35 U.S.C. 103 as allegedly being obvious over Kawakubo in view of Yamada et al.

and in further view of U.S. Patent No. 5,614,287 issued to Sekiya et al. (Sekiya).

These rejections are respectfully traversed for at least the above reasons and the following reasons.

Kawakubo arguably discloses a light transmission flattenable film 205. Yamada arguably discloses a light transmission flattenable film 8 (figures 1A-D) or a light transmission flattenable film 9 (figure 2), and Sekiya arguably discloses a light transmission flattenable film 19.

But within the claims as amended, the light transmission flattenable film includes a backing layer, a light transmission flattenable layer and a surface layer. The backing layer is above the formed film layer, the light transmission flattenable layer is above the backing layer, and the said surface layer is above said light transmission flattenable layer.

Withdrawal of these rejections and allowance of the claims is respectfully requested.

Conclusion

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the amendments and remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753 or the undersigned attorney at the below-listed number.

Respectfully submitted,

DATE: May 28 , 2002

Ronald P. Kananen
Reg. No. 24,104

RADER, FISHMAN & GRAUER PLLC
Lion Building
Suite 501
1233 20th Street, N.W.
Washington, D.C. 20036
Tel: (202) 955-3750
Fax: (202) 955-3751

APPENDIX

IN THE SPECIFICATION

Please replace the paragraph beginning at page 3, line 21 with the following rewritten paragraph.

-- By the way, in case the optical system has had its NA increased, there occurs the problem that the coma-aberation becomes large. The coma-aberation is proportionate to (skew angle) x $(NA)^3$ x (the distance over which laser light transmits through the optical disk) (provided, however, that the skew angle is an angle of inclination defined with respect to the optical axis of the optical disk). As stated above, because laser light is irradiated onto the recording layer from the side of the substrate, in order to decrease the coma-aberation, it is necessary to make the substrate thin. In view of the fact that a plastic injection molded substrate has hitherto been widely used as the substrate of the optical disk, thinning the substrate with a high precision is difficult in terms of the manufacture. --

Please replace the paragraph beginning at page 15, line 18 with the following rewritten paragraph.

-- And, in such a way as to have buried therein the fine concavities and convexities 3s, a light transmission flattenable film 4, which is capable of being polished, is formed. The surface of this film 4 is then polished and flattened. --

IN THE CLAIMS

Please amend the claims as follows.

1. (amended) An optical recording medium for performing at least one of recording and reproduction of information by irradiation of light, comprising;

on a substrate with fine concavities and convexties formed on a surface thereof on a side onto which said irradiation of light is performed a formed film layer the surface of which is made a surface of fine concavities and convexties representing said fine concavities and convexties and which has at least a recording layer; and

a light transmission flattenable film which buries therein the fine concavities and convexities surface, and which has a transmission characteristic with respect to the irradiated light, and which has its surface polished and has a hardness enabling it to be polished,

wherein said light transmission flattenable film includes a backing layer, a light transmission flattenable layer and a surface layer, said backing layer being above said formed film layer, said light transmission flattenable layer being above said backing layer, and said surface layer being above said light transmission flattenable layer.

2. The optical recording medium according to claim 1, wherein the formed film layer has a reflection film formed on the substrate.

3. The optical recording medium according to claim 1, wherein the light transmission flattenable film consists of inorganic flattenable material.

4. The optical recording medium according to claim 1, wherein the light transmission flattenable film consists of flattenable material the formation temperature of which is 150 C or less.

5. The optical recording medium according to claim 1, wherein the substrate consists of organic material substrate; and

the light transmission flattenable film consists of film-forming material the formation temperature of which is 150°C or less.

6. The optical recording medium according to claim 1, wherein the light transmission flattenable film consists of spin-coat flattenable material.

7. The optical recording medium according to claim 1, wherein at least one of respective films constituting the formed film layer consists of a sputtering-formed film.

8. The optical recording medium according to claim 1, wherein the thickness of the light transmission flattenable film is made to be 400 nm or less.

9. (amended) The optical recording medium according to claim 1, wherein the thickness of the light transmission flattenable film is made to be equal to or smaller than the thickness of the ~~light transmission flattenable~~formed film layer.

10. The optical recording medium according to claim 1, wherein the thickness of the light transmission flattenable film is made 100 nm or less.

11. The optical recording medium according to claim 1, wherein the light transmission flattenable film consists of spin-coat flattenable material having SiO_2 as a main component.

12. The optical recording medium according to claim 1, wherein the light transmission flattenable film has a high level of flatness by having protrusions eliminated that damage an optical system disposed in the proximity of and in opposition to the surface of the light recording medium and performs the irradiation of light.

13. The optical recording medium according to claim 1, wherein the fine concavities and convexities have lands and grooves;

the difference in level between the land and the groove is selected to be at a value which only causes mutual interaction between these two to less occur with respect to the irradiated light; and

the recording of the information is performed with respect to the recording layer of either, or both, of the land and the groove.

14. The optical recording medium according to claim 1, wherein a backing layer of dielectric material is formed on a surface where the light transmission flattenable film is formed.

15. The optical recording medium according to claim 1, wherein a backing layer of dielectric material is formed on a surface where the light transmission flattenable film is formed, whereby the irradiation efficiency of a irradiated light with respect to the recording layer is enhanced.

16. The optical recording medium according to claim 1, wherein a backing layer of dielectric material is formed on a surface where the light transmission flattenable film is formed, whereby the surface hardness of the optical recording medium is enhanced.

17. The optical recording medium according to claim 1, wherein the recording layer has a material layer the phase of which is changed by the irradiation of light from an amorphous

state of low reflectance to a crystalline state of high reflectance or vice versa.

18. An optical recording medium according to claim 1, wherein the recording layer has a material layer the state of magnetization of which is changed by the irradiation of light.

19. A manufacturing method of an optical recording medium for performing at least one of recording and reproduction of information by irradiation of light, comprising:

a manufacturing step of manufacturing a substrate having fine concavities and convexities formed on the surface thereof on a side onto which the irradiation of light is performed;

a forming step of forming a formed film layer the surface of which is made a fine concavities and convexities surface reflecting the fine concavities and convexities on itself and which has at least a recording layer;

a forming step of forming a light transmission flattenable film which has buried in the formed film layer the fine concavities and convexities surface, and which has a transmission characteristic with respect to the irradiated light, has its surface polished and has a hardness enabling it to be polished; and

a polishing step of polishing at least the surface of the light transmission flattenable film.

20. The manufacturing method of an optical recording medium according to claim 19, wherein before executing the forming step of forming the light transmission flattenable film there is executed a step of eliminating or truncating protrusions on the surface of the substrate.

21. The manufacturing method of an optical recording medium according to claim 19, wherein the polishing step is a flying tape polish (FTP) step.

22. The manufacturing method of an optical recording medium according to claim 19, wherein in the forming step of the formed film layer there is executed a step of forming a reflection film on the substrate.

23. The manufacturing method of an optical recording medium according to claim 19, wherein the forming step of the formed film layer uses a method of forming a film by sputtering.

24. The manufacturing method of an optical recording medium according to claim 19, wherein the formation of the light transmission flattenable film is performed at a temperature of 150°C or less.

25. The manufacturing method of an optical recording medium according to claim 19, wherein the substrate is formed using an organic substrate material; and

the formation of the light transmission flattenable film is performed at a temperature of 150°C or less.

26. The manufacturing method of an optical recording medium according to claim 19, wherein the formation of the light transmission flattenable film is performed using a spin-coating method of inorganic material.

27. The manufacturing method of an optical recording medium according to claim 19, wherein the formation of the light transmission flattenable film is performed to a thickness of 400 nm or less.

28. The manufacturing method of an optical recording medium according to claim 19, wherein the formation of the light

transmission flattenable film is performed to a thickness equal to or smaller than the thickness of the formed film layer.

29. The manufacturing method of an optical recording medium according to claim 19, wherein the light transmission flattenable film is formed using a spin-coating method of performing spin-coating with respect to a flattenable material having SiO2 as a main component.

30. The manufacturing method of an optical recording medium according to claim 19, wherein the fine concavities and convexities have lands and grooves;

the difference in level between the land and the groove is selected to be at a value which only causes mutual interaction between these two to less occur with respect to the irradiated light; and

the recording layer of either, or both, of the land and the groove is used as a recording portion of the information.

31. The manufacturing method of an optical recording medium according to claim 19, wherein after executing the forming step of the formed film layer having at least the recording layer there is executed the forming step of the light transmission

flattenable film via a step of forming a dielectric backing layer on the surface of the formed film layer.

32. The manufacturing method of an optical recording medium according to claim 19, wherein after executing the forming step of the formed film layer having at least the recording layer there is executed the forming step of the light transmission flattenable film via a step of forming a dielectric backing layer on the surface of the formed film layer; and

the dielectric backing layer is formed using a material layer to enhance the surface hardness of the optical recording medium.

33. The manufacturing method of an optical recording medium according to claim 19, wherein the recording layer is formed using a material layer the phase of which is changed by the irradiation of light from an amorphous state of low reflectance to a crystalline state of high reflectance or vice versa.

34. The manufacturing method of an optical recording medium according to claim 19, wherein the recording layer is formed using a material layer the state of magnetization of which is changed by the irradiation of light.

Please add the following claims.

35. (new) The optical recording medium according to claim 1, wherein said light transmission flattenable film is capable of being polished.

36. (new) The optical recording medium according to claim 1, wherein said backing layer is a first dielectric, said light transmission flattenable layer is a second dielectric, and said surface layer is a third dielectric.

37. (new) The optical recording medium according to claim 36, wherein said first dielectric, said second dielectric and said third dielectric are the same dielectric.

38. (new) The optical recording medium according to claim 1, wherein said light transmission flattenable film is on said formed film layer.

39. (new) The optical recording medium according to claim 38, wherein said backing layer is on said formed film layer, said light transmission flattenable layer is formed on said backing

layer, and said surface layer is on said light transmission flattenable layer.

40. (new) The optical recording medium according to claim 1, wherein said formed film layer includes a reflection film, a first dielectric film and a phase change recording layer.

41. (new) The optical recording medium according to claim 40, wherein said reflection film is formed on said substrate, said first dielectric film is formed on said reflection film, and said phase change recording layer is formed on said first dielectric film.